PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 1137U004WO00	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US03/17079	International filing date *(day/month/year)* 30 May 2003 (30.05.2003)	Priority date *(day/month/year)* 03 June 2002 (03.06.2002)
International Patent Classification (IPC) or national classification and IPC IPC(7): H04B 10/00 and US Cl.: 398/156		
Applicant OMNILUX INC.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of ___ sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
15 October 2003 (15.10.2003)	12 August 2004 (12.08.2004)
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230	Authorized officer Jason Chan Telephone No. '703 305-3900

Form PCT/IPEA/409 (cover sheet)(July 1998)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US03/17079

I. Basis of the report

1. With regard to the elements of the international application:*

☒ the international application as originally filed.

☒ the description:
pages 1-37 as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☒ the claims:
pages 38-54, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☒ the drawings:
pages 1-24, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☐ the sequence listing part of the description:
pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination(under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages NONE

☐ the claims, Nos. NONE

☐ the drawings, sheets/~~fig~~ NONE

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

** Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).*

*** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US03/17[redacted]

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims	3-5, 8-9, 13-17, 20-21, 25-33, 38-67	YES
	Claims	1-2, 6-7, 10-12, 18-19, 22-24, 34-37	NO
Inventive Step (IS)	Claims	NONE	YES
	Claims	1-67	NO
Industrial Applicability (IA)	Claims	1-67	YES
	Claims	NONE	NO

2. CITATIONS AND EXPLANATIONS
Please See Continuation Sheet

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Claims 1-2, 6-7, 10-12 and 18-19 lack novelty under PCT Article 33(2) as being anticipated by Bloom (U.S. Patent 6,323,908 B1). Bloom discloses a free-space infrared communication system in FIG. 5. FIG. 5 shows a support assembly, at least two infrared transceivers mounted on the support assembly. Bloom teaches in FIG. 3 and col. 2 line 65-col. 4, line 30 that each transceiver includes an infrared laser of 2 mrad divergence, a PIN diode of 500 micron diameter, a nested gimbal that can move in the elevation axis and azimuthal axis under the control of a microprocessor 22. Bloom includes in FIG. 15 a packet switch connected to the transceivers. Regarding claim 2, Bloom teaches in FIG. 18C a dome lens for the photodiode and teaches in col. 7, lines 66 the use of avalanche photodiode. Regarding claims 6-7, Bloom teaches in FIG. 14 the connection of a picocell to an end-office switch via RF.

Claims 3-5 and 13-16 lack an inventive step under PCT Article 33(3) as being obvious over Bloom (U.S. Patent 6,323,908 B1) in view of Chan et al. (U.S. Patent 5,999,299). Bloom has been discussed above in regard to claims 1-2, 6-7, 10-12 and 18-19. Bloom further discusses in col. 8, line 64-col. 9, lines 27 that the transceivers are mounted on poles or roof of a building and the thermal effect. Therefore, the transceiver is weatherproof. The difference between Bloom and the claimed invention is that Bloom does not teach indicator for compass direction. Chan et al. teaches in col. 3, lines 28-33 the use of GPS monitor, computer and software to record the GPS position and compass position of the transceivers.

Claims 8 and 17 lack an inventive step under PCT Article 33(3) as being obvious over Bloom (U.S. Patent 6,323,908 B1) in view of Shivnan (U.S. Patent Pub. 2002/0054413 A1). Bloom has been discussed above in regard to claims 1-2, 6-7, 10-12 and 18-19. The difference between Bloom and the claimed invention is that Bloom does not teach the use of the transceiver to carry IP data. Bloom the transceiver to carry ATM data. As pointed out by Shivnan in paragraph [0039] that handling ATM and handling TCP/IP are well known in the art and the technologies for handling ATM can be applied to handling TCP/IP.

Claim 9 lack an inventive step under PCT Article 33(3) as being obvious over Bloom (U.S. Patent 6,323,908 B1). Bloom has been discussed above in regard to claims 1-2, 6-7, 10-12 and 18-19. The difference between Bloom and the claimed invention is that Bloom does not teach the arrangement of system components into circuit boards. However, it is well known in the art to arrangement electronic and optical components into circuit boards and interconnect circuit boards with connectors and wiring.

Claims 20-21 lack an inventive step under PCT Article 33(3) as being obvious over Thorp (U.S. Patent 5,257,285) in view of Yoon et al. (T. Yoon et al., "622 Mbit/s CMOS Limiting Amplifier with 40dB Dynamic Range", Electronics Letter, Vol. 32, No. 20, 26th September 1996). Thorp discloses in FIG. 4 a first amplifier, a second amplifier and a third amplifier. The difference between Thorp and the claimed invention is that the first amplifier of Thorp is not a differential amplifier. Yoon et al. teaches the cascading of multiple amplifiers. Thus it would have been obvious for one of ordinary skill in the art to replace the first amplifier with a differential amplifier.

Claims 22-24 and 34-37 lack novelty under PCT Article 33(2) as being anticipated by Bloom (U.S. Patent 6,323,908 B1). Bloom

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

teaches in FIG. 20A-H steps for aligning a point-to-point communication transceiver. Bloom teaches in col. 12, lines 1-5 that a new transceiver and an existing transceiver scan synchronously. Regarding claim 37, Bloom teaches in col. 5, lines 50-52 the use of a Pentium PC to control the alignment. A Pentium PC contains a CPU and memory for executing instructions stored in the program area.

Claims 25-26 lack an inventive step under PCT Article 33(3) as being obvious over Bloom (U.S. Patent 6,323,908 B1). Bloom has been discussed above in regard to claims 22-24 and 34-37. Bloom teaches in FIG. 20D to choose a step size. It is obvious that to cover the whole path, a step size must be less than the spot size of the beam.

Claim 27-29 lack an inventive step under PCT Article 33(3) as being obvious over Bloom (U.S. Patent 6,323,908 B1) in view of Endo et al. (U.S. Patent 5,329,395). Bloom has been discussed above in regard to claims 22-24. Endo et al. suggests in col. 5, lines 41-54 that signal strength are recorded during sweep for calculating the centroids.

Claim 30 lack an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in the immediately preceding paragraph and further in view of Heminger et al. (U.S. Patent Application Pub. 2002/0054411 A1). Bloom and Endo et al. have been discussed above in regard to claims 27-29. The difference between Bloom and Endo et al. and the claimed invention is that Bloom and Endo et al. do not teach circular sweeps. Heminger et al. teaches in FIG. 3 circular sweep.

Claim 31 lack an inventive step under PCT Article 33(3) as being obvious over the prior art Bloom and Endo et al. as applied in the preceding paragraph for claims 27-29 and further in view of Swanson et al. (U.S. Patent 5,062,150). Bloom and Endo et al. have been discussed above in regard to claims 27-29. The difference between Bloom and Endo et al. and the claimed invention is that Bloom and Endo et al. do not teach dither path. Swanson et al. teaches in FIG. 3 the use of a dither generator to drive the receiver to follow a dither path.

Claims 32-33, 38-40 and 42-43 lack an inventive step under PCT Article 33(3) as being obvious over the prior art Bloom and Endo et al. as applied in the preceding paragraph for claims 27-29 and further in view of Czichy et al. (U.S. Patent 6,297,897 B1). Bloom and Endo et al. have been discussed above in regard to claims 27-29. The difference between Bloom and Endo et al. and the claimed invention is that Bloom and Endo et al. do not teach the state transition between communication mode and acquisition mode. Czichy et al. teaches in FIG. 13 that when the error in a communication link is high, the connection is lost and reacquisition occurs.

Claim 41 lack an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in the immediately preceding paragraph and further in view of Swanson et al. (U.S. Patent 5,062,150). Bloom, Endo et al. and Czichy et al. have been discussed above in regard to claims 32-33, 38-40 and 42-43. The difference between Bloom, Endo et al. and Czichy et al. and the claimed invention is that Bloom, Endo et al. and Czichy et al. do not teach dither path. Swanson et al. teaches in FIG. 3 the use of a dither generator to drive the receiver to follow a dither path.

Claims 44-45, 50-53, 55-56, 61-64 and 66-67 lack an inventive step under PCT Article 33(3) as being obvious over Bloom (U.S. Patent 6,323,908 B1) in view of Endo et al. (U.S. Patent 5,329,395). Bloom teaches in FIG. 20A-H steps for aligning a point-to-point communication transceiver. The difference between Bloom and the claimed invention is that Bloom does not teach to position the transceiver to the center between two positions of maximum signal. Endo et al. teaches to calculate the centroid and position the transceiver at the centroid (Xw,Yw). Regarding claims 61 and 62, Endo et al. teaches in FIGs. 6, 9 and 10 various scanning patterns.

Claims 46-49 and 57-60 lack an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in the immediately preceding paragraph and further in view of Czichy et al. (U.S. Patent 6,297,897 B1). Bloom and Endo et al. have been discussed above in regard to claims 44-45, 50-53, 55-56, 61-64 and 66-67. Czichy et al. teaches in FIG. 13 that when the error in a communication link is high, the connection is lost and reacquisition occurs. Regarding claim 59, it is well known that Ethernet frames contain a maximum of 1440 bytes of data and the minimum frame size of Ethernet is 64 bytes. Regarding claim 60, it is well known that TCP/IP packets contain sequential counter.

Claim 54 and 65 lacks an inventive step under PCT Article 33(3) as being obvious over the prior art Bloom and Endo et al. as applied in the preceding paragraph for claims 44-45, 50-53, 55-56, 61-64 and 66-67 and further in view of Wissinger (U.S. Patent 5,475,520). Bloom and Endo et al. have been discussed above in regard to claims 44-45, 50-53, 55-56, 61-64 and 66-67. Wissinger teaches in FIG. 8 to refine the acquisition process by reducing the spot size of infrared beams.

---------- NEW CITATIONS ----------

US 5,062,150 (SWANSON et al) 29 October 1991, see FIG. 3.
US 5,329,395 A (ENDO et al) 12 July 1994 , see col. 5, lines 41-54.
US 5,475,520 A (WISSINGER) 12 December 1995, see FIG. 8.

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Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

US 6,297,897 B1 (CZICHY et al) 2 October 2001, see FIG. 13.
US 2002/0054411 A1 (HEMINGER et al) 9 May 2002, see FIG. 3.